Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A shell-and-tube type reactor comprising: a cylindrical shell having disposed on the periphery thereof a plurality of annular conduits for guiding a heating medium in or out in the radial direction and having a raw material inlet and a product outlet;

a circulation device for mutually connecting a plurality of annular conduits;

a plurality of reaction tubes constrained to the reactor by a plurality of tube sheets;

donut type baffle plates and disc type baffle plates disposed in the longitudinal direction of the reaction tubes and adapted to vary the direction of the heating medium introduced into the shell;

~~the~~ said reaction tubes being restrained at center distances 1.2 – 1.4 times the outside diameter of the reaction tube;

an empty space devoid of a configuration of the reaction tubes at a center of the shell;

said reaction tubes unsupported by the donut type baffle plate in the center hole side; and

a gas discharge conduit discharging a gas accumulated in the shell.

2. (Original) A reactor according to claim 1 further comprising reaction tubes not supported by the disc type baffle plates.

3. (Original) A reactor according to claim 1, wherein a cross sectional area of the empty space is in the range of 0.5 – 5% of the cross sectional area of the shell, a cross sectional area of the disc type baffle plates in the range of 50 – 95% of the cross sectional area of the shell, and a cross sectional area of holes in the donut type baffle plates in the range of 2 – 25% of the cross sectional area of the shell.

4. (Currently amended) A reactor according to claim 1, further comprising at least one circulation passage for the heating medium between an empty space devoid of a configuration of reaction tubes in the center of the shell and the peripheral part of the shell; and the circulation passage has no reaction tubes between them.

5. (Currently amended) A reactor according to claim 2, wherein a cross sectional area of the empty space is in the range of 0.5 – 5% of the cross sectional area of the shell, a cross sectional area of the disc type baffle plates in the range of 50 – 95% of the cross sectional area of

the shell, and a cross sectional area of holes in the donut type baffle plates in the range of 2 – 25% of the cross sectional area of the shell.

6. (Currently amended) A reactor according to claim 3, wherein ~~a difference in the number of reaction tubes configured in the regions of reaction tubes divided by a least two circulation passages~~ a value calculated by | (Number of reaction tubes in individual regions) / (average number of reaction tubes in the regions) - 1| x 100 is within 3%.

7. (Currently amended) A reactor according to claim 4, wherein ~~a difference in the number of reaction tubes configured in the regions of reaction tubes divided by at least two circulation passages~~ a value calculated by | (Number of reaction tubes in individual regions) / (average number of reaction tubes in the regions) - 1| x 100 is within 3%.

8. (Original) A reactor according to claim 4, wherein a cross-sectional area of the circulation passage is in the range of 0.5 – 5% based on the cross-sectional area of the shell.

9. (Original) A reactor according to claim 5, further comprising at least one circulation passage for the heating medium between an empty space devoid of a configuration of reaction tubes in the center of the shell and the peripheral part of the shell.

10. (Original) A reactor according to claim 7, wherein a cross sectional area of the empty space is in the range of 0.5 – 5% of the cross sectional area of the shell, a cross sectional area of the disc type baffle plates in the range of 50 – 95% of the cross sectional area of the reactor, and a cross sectional area of holes in the donut type baffle plates in the range of 2 – 25% of the cross sectional area of the shell.

11. (Original) A reactor according to claim 1 further comprising at least two of circulation conduits for supplying or withdrawing the heating medium to or from the shell.

12. Cancelled.

13. (Currently amended) ~~A reactor according to claim 1, wherein the circulation conduit further has~~ A shell-and-tube type reactor comprising:

a cylindrical shell having disposed on the periphery thereof a plurality of annular conduits for guiding a heating medium in or out in the radial direction and having a raw material inlet and a product outlet;

a circulation device for mutually connecting a plurality of annular conduits;

a plurality of reaction tubes constrained to the reactor by a plurality of tube sheets;

donut type baffle plates and disc type baffle plates disposed in the longitudinal direction of the reaction tubes and adapted to vary the direction of the heating medium introduced into the shell;

said reaction tubes being restrained at center distances 1.2 – 1.4 times the outside diameter of the reaction tube;

an empty space devoid of a configuration of the reaction tubes at a center of the shell;

said reaction tubes unsupported by the donut type baffle plate in the center hole side; and

a plurality of opening rows for allowing the heating medium to pass, an width B of the opening being in the range of 5 to 50% based on the center distance, and a ration of opening length C/opening width B being in the range of 0.2 to 20.

14. (Original) A reactor according to claim 13, wherein at least one of the opening rows has more than 2 openings.

15. (Currently amended) A reactor according to claim 1 further comprising two chambers along with the direction of a raw material gas inlet to a product outlet, said chamber is partitioned with a tube sheet.

16. (Original) A reactor according to claim 15, further comprising at least one circulation passage for the heating medium between an empty space devoid of a configuration of reaction tubes in the center of the shell and the peripheral part of the shell.

17. (Original) A reactor according to claim 15, wherein a cross sectional area of the empty space is in the range of 0.5 – 5% of the cross sectional area of the shell, a cross sectional area of the disc type baffle plates in the range of 50 – 95% of the cross sectional area of the reactor, and a cross sectional area of holes in the donut type baffle plates in the range of 2 – 25% of the cross sectional area of the shell.

18. (Currently amended) A reactor according to claim 16, wherein ~~a difference in the number of reaction tubes configured in the regions of reaction tubes divided by at least two circulation passages~~ a value calculated by | (Number of reaction tubes in individual regions) / (average number of reaction tubes in the regions) - 1| x 100 is within 3%.

19. (Original) A method for the production of (meth) acrylic acid and/or (meth) acrolein by means of catalytic gas phase oxidation using a reactor set forth in claim 1.